

We claim:

1. A process for the preparation of a conducting electrode useful for the electrocatalytic oxidation of alcohols which comprises coating a substrate with a metallic or conducting backing layer, electrochemically coating the metal coated or conductive backing layer coated substrate with a polymer using a monomer or a mixture of monomer and an activating agent to obtain the conducting electrode.
2. A process as claimed in claim 1 wherein the substrate comprises an insulating polymer coated substrate.
3. A process as claimed in claim 1 wherein the substrate is selected from the group consisting of a glass plate, polyester film having smooth surface and an electrical resistivity of greater than 10^{10} ohm-cm.
4. A process as claimed in claim 1 wherein the metallic backing layer comprises of a vacuum deposited thin film of a metal selected from the group consisting of gold, platinum and chromium.
5. A process as claimed in claim 1 wherein the conducting backing layer is selected from dip-coated carbon and graphite dispersions having inert nature in the potential range of 0 to 1.0 Volts with respect to saturated calomel electrode (SCE).
6. A process as claimed in claim 2 wherein the insulating polymer is selected from the group consisting of polyvinyl butyral, polyvinyl acetate and styrene butadiene co-polymer, having adhesion strength higher than 10 g/micron.
7. A process as claimed in claim 6 wherein the insulating polymer solution is used in a concentration in the range of 1 to 2 wt./v.
8. A process as claimed in claim 1 wherein the activating agent is selected from the group consisting of halides of multivalent metals with electronegativity in the range of 1.2 to 1.5.
9. A process as claimed in claim 1 wherein the conducting polymer coated substrate is subjected to doping with a doping agent when the polymer deposition is carried out only with the monomer.
10. A process as claimed in claim 9 wherein the doping agent contains electron acceptor compounds such as copper chloride, ferric chloride, cobalt chloride and like Lewis acid compounds and is used in a concentration in the range of 0.001 M to 0.1 M preferably 0.006 M to 0.012 M.

11. A process as claimed in claim 1 wherein the monomer used for depositing conducting polymer film is selected from the group consisting of aromatic and heterocyclic compounds containing nitrogen.
12. A process as claimed in claim 1 wherein the monomer is selected from the group
5 consisting of aniline, pyrrole, anisidine and toluediene
13. A process as claimed in claim 1 wherein the coating of the conducting polymer on the metal pre-coated insulating substrate is carried out by dipping the pre-treated insulating substrate in an aqueous electrolyte containing 0.1 to 0.5 M hydrogen containing mineral acids such as hydrochloric or sulfuric acid together with a monomer and a macrocyclic
10 compound, by applying potential of 0.7 to 0.9 Volts